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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MCCOMMAS, STUART S	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/527,134	HARDWICK ET AL.	
	Examiner	Art Unit	
	Stuart McCommas	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 25 March 2009.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-18 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/25/2009 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 8-9 and 14-15 are rejected under 35 U.S.C. 102(b) as being unpatentable over Rosenberg et al. (United States Patent 5,734,373), hereinafter referenced as 373, in view of Braun et al. (United States Patent 6,411,276), hereinafter referenced as Braun.

Regarding claim 8, 373 discloses a host computer system 12 used with a force feedback interface device 14 in a bi-directional transmission arrangement for transmitting a signal between one location and a current location of a host computer system 12 where the host computer system 12 receives signals from the haptic output

device to determine the last stored current position of input object 34 and determines from signals received in the transmission arrangement using the serial port 24 a preferred current position for the input object 34 (figure 1; column 3 lines 35-56; column 17 lines 46-67; column 18 lines 1-4) Further Rosenberg discloses that the host computer 12 determines an output force and direction needed to move the input object 34 of the haptic device 14 from the current position to the desired position (figure 1; column 17 lines 46-67; column 18 lines 1-4). Rosenberg discloses that that output force is further modified by a damping factor to slow movement between the positions and the host computer 12 outputs signals corresponding to this modified force and direction (figure 1; figure 5; column 17 lines 46-67; column 18 lines 1-4). Rosenberg further discloses that the damping factor is based on a measure of network latency of the signal transmitted between the one location and the current location of the host computer (figure 1; figure 5; column 18 lines 8-30; column 3 lines 35-56).

However 373 fails to disclose transmission via a connectionless network.

In a similar field of invention Braun discloses transmission via a connectionless network (column 4 lines 61-67; column 5 lines 1-2; figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 373 with Braun by specifically providing transmission via a connectionless network for the purpose of allowing wireless communication so that wires are not necessary to communicate.

Regarding claim 9, 373 and Braun, the combination discloses everything as applied above (see claim 8), further 373 discloses that the control means receives signals from the haptic output device, said signals containing data defining the position of said device at any particular time, said control means converting said data to signals for transmission to said bi-directional transmission arrangement at predetermined intervals. Specifically 373 discloses that the host computer 12 receives signals from the haptic device 14 where the signal contain data for the position of the input object 34 at any time where the host computer converts the position data into force signals for the haptic device 14 where the host computer 12 receives the data and converts it at predetermined time intervals (figure 1; figure 5; column 17 lines 46-67; column 18 lines 1-4).

Regarding claim 14, 373 discloses a host computer system 12 used with a force feedback interface device 14 in a bi-directional transmission arrangement for transmitting a signal between one location and a current location of a host computer system 12 where the host computer system 12 receives data packet signals from the haptic output device to determine the last stored current position of input object 34 and determines from data packet signals received in the transmission arrangement using the serial port 24 a preferred current position for the input object 34 (figure 1; column 3 lines 35-56; column 17 lines 46-67; column 18 lines 1-4; column 44 lines 55-67; column 45 lines 1-5). Further Rosenberg discloses that the host computer 12 determines an output force and direction needed to move the input object 34 of the haptic device 14 from the current position to the desired position (figure 1; column 17 lines 46-67; column

18 lines 1-4). Rosenberg discloses that that output force is further modified by a damping factor to slow movement between the positions and the host computer 12 outputs signals corresponding to this modified force and direction (figure 1; figure 5; column 17 lines 46-67; column 18 lines 1-4). Rosenberg further discloses that the damping factor is based on a measure of latency of the signal transmitted between the one location and the current location of the host computer (figure 1; figure 5; column 18 lines 8-30; column 3 lines 35-56).

However 373 fails to disclose transmission via a connectionless network.

In a similar field of invention Braun discloses transmission via a connectionless network (column 4 lines 61-67; column 5 lines 1-2; figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 373 with Braun by specifically providing transmission via a connectionless network for the purpose of allowing wireless communication so that wires are not necessary to communicate.

Regarding claim 15, 373 and Braun, the combination discloses everything as applied above (see claim 8), further 373 discloses that the control means receives signals from the haptic output device, said signals containing data defining the position of said device at any particular time, said control means converting said data to signals for transmission to said bi-directional transmission arrangement at predetermined intervals. Specifically 373 discloses that the host computer 12 receives signals from the haptic device 14 where the signal contain data for the position of the input object 34 at

any time where the host computer converts the position data into force signals for the haptic device 14 where the host computer 12 receives the data and converts it at predetermined time intervals (figure 1; figure 5; column 17 lines 46-67; column 18 lines 1-4).

4. Claims 1-3, 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg et al. (United States Patent 6,101,530), hereinafter referenced as 530, in view of Rosenberg et al. (United States Patent 5,734,373), hereinafter referenced as 373, and further in view of Braun.

Regarding claim 1, 530 discloses a method of activating a haptic device 24 responsive to directional force comprising:

having the client machine 14 receive signals defining data packets over a TCP/IP connection where each packet of the received packets has data corresponding to directional force applied at a separate client 16 for transmission to client machine 14 (figure 6; figure 1; column 9 lines 44-67; column 10 lines 8-35; column 1 lines 45-52).

determining from received data the position for the force feedback device 24 to move to (figure 6; figure 1; column 9 lines 44-67; column 1 lines 45-52).

using the position data of the current position of the haptic device to generate force and output signals to be sent to the other client 16 (figure 6; column 10 lines 8-35).

However 530 fails to disclose transmission via a connectionless network, and applying a damping factor to said force and direction signals to slow the rate of movement from a previously defined position towards the current defined position, and

the damping factor being based on a measure of network latency of the signals transmitted between said one location and said current location.

In a similar field of invention Braun discloses transmission via a connectionless network (column 4 lines 61-67; column 5 lines 1-2; figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 530 with Braun by specifically providing transmission via a connectionless network for the purpose of allowing wireless communication so that wires are not necessary to communicate.

In a similar field of invention 373 discloses a method and apparatus for controlling force feedback interface systems utilizing a host computer. In addition 373 discloses that the a damping factor is applied to the force and direction signals to slow movement between the current position and the previous position (figure 1; figure 5; column 17 lines 46-67; column 18 lines 1-4). Rosenberg further discloses that the damping factor is based on a measure of network latency of the signal transmitted between the one location and the current location of the host computer (figure 1; figure 5; column 18 lines 8-30; column 3 lines 35-56).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 530 by specifically providing pplying a damping factor to said force and direction signals to slow the rate of movement from a previously defined position towards the current defined position and the damping factor being based on a measure of network latency of the signals transmitted between said one

location and said current location for the purpose of allowing damping to take place in a force feedback device to simulate an environment.

Regarding claim 2, 530, 373 and Braun, the combination discloses everything as applied above (see claim 1), further 530 discloses signaling in each direction whereby haptic forces applied at one device in reaction to an applied force towards the current defined position are reflected to a corresponding device in the form of current positional signals in a series of return data packets. Specifically 530 discloses that the client computer 14 and client computer 16 signal in each direction where haptic force is applied at the force feedback device 24 in reaction to an applied force towards the current position by the user where the force is communicated to client machine 16 through current positional signals transmitted as data in return data packets (figure 6; figure 1; column 9 lines 44-67; column 10 lines 8-35; column 1 lines 45-52).

Regarding claim 3, 530, 373 and Braun, the combination discloses everything as applied above (see claim 1), further 530 discloses a TCP/IP network on which data packets are carried (figure 6).

However the combination fails to disclose calculating the damping factor from determined parameters of a transmission network.

However the examiner maintains that was well known in the art to provide calculating the damping factor from determined parameters of a transmission network, as taught by 373.

In a similar field of invention 373 discloses a method and apparatus for controlling force feedback interface systems utilizing a host computer. In addition 373 discloses that a damping factor is calculated from the timing parameters of a transmission network (figure 1; figure 5; column 18 lines 8-30; column 3 lines 35-56).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 530, 373 and Braun by specifically providing calculating the damping factor from determined parameters of a transmission network for the purpose of allowing damping to take place in a force feedback device to simulate an environment.

Regarding claim 6, 530, 373 and Braun , the combination discloses everything as applied above (see claim 1), further 373 discloses applying a weighting factor in addition to the damping factor, the weighting factor being derived from other parameters of the interconnection such as resilience, hence the examiner maintains that it was well known in the art.

In a similar field of invention 373 discloses a method and apparatus for controlling force feedback interface systems utilizing a host computer. In addition 373 discloses that a weighting factor is included in addition to the damping factor where the weighting factor is derived from parameters of the interconnection including processing speeds of the processors (figure 1; figure 5; column 18 lines 8-30; column 3 lines 35-56).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 530, 373 and Braun by specifically providing applying a weighting factor in addition to the damping factor, the weighting factor being derived from other parameters of the interconnection such as resilience for the purpose of allowing damping to take place in a force feedback device and for force feedback to be dependent on interconnection parameters.

Regarding claim 13, 530, 373 and Braun, the combination discloses everything as applied above (see claim 1), further 530 discloses that the client computer 14 and client computer 16 signal in each direction where haptic force is applied at the force feedback device 24 in reaction to an applied force towards the current position by the user where the force is communicated to client machine 16 through current positional signals transmitted as data in return data packets (figure 6; figure 1; column 9 lines 44-67; column 10 lines 8-35; column 1 lines 45-52).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over 530, in view of 373, Braun and further in view of Chafe (United States Patent 6,801,939), hereinafter referenced as Chafe.

Regarding claim 4, 530, 373 and Braun, the combination discloses everything as applied above (see claim 3), however the combination fails to disclose that the measure of latency of the network is determined by transmitting a data packet to the network said packet including a time determinant identity, reflecting the data packet through the network and comparing the received time with the transmitted time.

In a similar field of invention Chafe discloses a method for evaluating quality of service of a digital network connection. In addition Chafe discloses that the measure of the latency of a network 10 is determined by transmitting a data packet to the network 10 where the packet has a round trip time and where the packet is reflected back through the network to a first computer 12 where the first computer compares the received time with the transmitted time to provide a latency parameter (column 2 lines 20-36).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 530, 373 and Braun by specifically providing that the measure of the latency of the network is determined by transmitting a data packet to the network said packet including a time determinant identity, reflecting the data packet through the network and comparing the received time with the transmitted time to provide a latency parameter for the purpose of allowing network latency to be calculated.

6. Claims 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over 530, in view of 373 and Braun and in view of Chafe and further in view of Wang et al. (United States Patent 6,852,107), hereinafter referenced as Wang.

Regarding claim 5, 530, 373 and Braun, the combination discloses everything as applied above (see claim 4), however the combination fails to disclose at least some transmitted packets carrying positional data also include the time determinant data, some of said time determinant data being returned to permit updating of the latency parameter.

Regarding at least some transmitted packets carrying positional data also include the time determinant data, in a similar field of invention Wang discloses a minimally invasive surgical training using robotics and tele-collaboration. In addition Wang discloses that packets sent over a network carry positional data and time determinant data including transmit and receive rates and other time determinant data (figure 8; figure 10; column 7 lines 47-55; column 8 lines 35-57)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 530, 373 and Braun by specifically providing at least some transmitted packets carrying positional data also include the time determinant data for the purpose of allowing packets containing position data and time data to be transmitted together. .

Regarding some of said time determinant data being returned to permit updating of the latency parameter, in a similar field of invention Chafe discloses a method for evaluating quality of service of a digital network connection. In addition Chafe discloses that the latency of a network 10 is determined by transmitting a data packet to the network 10 where the packet has a round trip time and where the packet is reflected back through the network and returned to a first computer 12 where the first computer compares the received time with the transmitted time to permit updating of a latency parameter (column 2 lines 20-36).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 530, 373 and Braun by specifically providing some of

said time determinant data being returned to permit updating of the latency parameter for the purpose of allowing network latency to be calculated.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over 530, in view of 373 and Braun and further in view of Wang.

Regarding claim 7, 530, 373 and Braun, the combination discloses everything as applied above (see claim 1), however the combination fails to disclose applying a modifying factor to the force and direction signals, said modifying factor being derived from pre determined user preference data.

In a similar field of invention Wang discloses a minimally invasive surgical training using robotics and tele-collaboration. In addition Wang discloses that a modifying factor is applied to the force and direction signals, where the user selects the modifying factor (figure 8; figure 12; column 10 lines 42-67; column 11 lines 1-39).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 530, 373 and Braun by specifically providing applying a modifying factor to the force and direction signals, said modifying factor being derived from pre determined user preference data for the purpose of allowing a user to control the force feedback in a device.

8. Claims 10-11 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg et al. (United States Patent 5,734,373), hereinafter referenced as 373, in view of Braun, and further in view of Niemeyer et al. (United States Patent 6,144,884), hereinafter referenced as Niemeyer.

Regarding claim 10, 373 and Braun, the combination discloses everything as applied above (see claim 8), however the combination fails to disclose the signals defining a preferred current position are generated by an environment simulator, for example a programmed computer.

In a similar field of invention Niemeyer discloses teleoperation with variable delay. In addition Niemeyer discloses that the signals defining a preferred current position for an output are generated by a slave simulator at the slave terminal 250 (figure 1; figure 2; column 5 lines 29-49).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 373 and Braun by specifically providing the signals defining a preferred current position are generated by an environment simulator, for example a programmed computer for the purpose of allowing a user to control the position of objects in a simulated environment.

Regarding claim 11, 373 and Braun, the combination discloses everything as applied above (see claim 8), however the combination fails to disclose the signals defining a preferred current position are generated by a corresponding interactive output terminal at the opposed end of the transmission arrangement.

In a similar field of invention Niemeyer discloses teleoperation with variable delay. In addition Niemeyer discloses that the signals defining a preferred current position for an output are generated by a slave simulator at the slave terminal 250 (figure 1; figure 2; column 5 lines 29-49).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 373 and Braun by specifically providing signals defining a preferred current position are generated by a corresponding interactive output terminal at the opposed end of the transmission arrangement for the purpose of allowing a user to control the position of objects in a simulated environment.

Regarding claim 16, 373 and Braun, the combination discloses everything as applied above (see claim 14), however the combination fails to disclose the signals defining a preferred current position are generated by an environment simulator, for example a programmed computer.

In a similar field of invention Niemeyer discloses teleoperation with variable delay. In addition Niemeyer discloses that the signals defining a preferred current position for an output are generated by a slave simulator at the slave terminal 250 (figure 1; figure 2; column 5 lines 29-49).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 373 and Braun by specifically providing the signals defining a preferred current position are generated by an environment simulator, for example a programmed computer for the purpose of allowing a user to control the position of objects in a simulated environment.

Regarding claim 17, 373 and Braun, the combination discloses everything as applied above (see claim 14), however the combination fails to disclose the signals

defining a preferred current position are generated by a corresponding interactive output terminal at the opposed end of the transmission arrangement.

In a similar field of invention Niemeyer discloses teleoperation with variable delay. In addition Niemeyer discloses that the signals defining a preferred current position for an output are generated by a slave simulator at the slave terminal 250 at the opposite end of a transmission (figure 1; figure 2; column 5 lines 29-49).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 373 and Braun by specifically providing signals defining a preferred current position are generated by a corresponding interactive output terminal at the opposed end of the transmission arrangement for the purpose of allowing a user to control the position of objects in a simulated environment.

9. Claims 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over 373 in view of Braun and in view of Wang and further in view of Rosenberg et al. (United States Patent 5,959,613), hereinafter referenced as 613.

Regarding claim 12, 373 and Braun, the combination discloses everything as applied above (see claim 8), however the combination fails to disclose that a series of packets defining preferred position are received, each packet defining a directional force applied at one location for transmission to the current location, the control means includes means to determine from packet data the sequence of transmission and re-ordering the data into a numerically correct series, extrapolating from previously received packets an anticipated linear movement to be defined by subsequently

received packets and applying output directional force signals corresponding to said anticipated linear movement in respect of any missing data packet.

Regarding a series of packets defining preferred position are received, each packet defining a directional force applied at one location for transmission to the current location, the control means includes means to determine from packet data the sequence of transmission and re-ordering the data into a numerically correct series, in a similar field of invention Wang discloses a minimally invasive surgical training using robotics and tele-collaboration. In addition Wang discloses that a series of packets defining preferred position are received by computer 150, where each packet defines a directional force applied at a remote location 140 for transmission to computer 150, where the computer 150 receives the packets and determines the sequence of transmission from the packets and re-orders the packet data in numerical order (figure 7; column 7 lines 56-67; column 8 lines 1-17).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 373 and Braun by specifically providing a series of packets defining preferred position are received, each packet defining a directional force applied at one location for transmission to the current location, the control means includes means to determine from packet data the sequence of transmission and re-ordering the data into a numerically correct series for the purpose of allowing packets in non-numerical order to be re-ordered to provide accurate output.

Regarding extrapolating from previously received packets an anticipated linear movement to be defined by subsequently received packets and applying output directional force signals corresponding to said anticipated linear movement in respect of any missing data packet, in a similar field of invention 613 discloses a method and apparatus for shaping force signals for a force feedback device. Further 613 discloses that a local processor receives packets of data defining a linear movement for a force where the movement is further defined by subsequent force data packets and applies output directional force signals corresponding to the force feedback data regardless of missing packets when overlapping data is contained in received packets (figure 1; column 3 lines 54-67; column 4 lines 1-20; column 9 lines 45-52).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 373 and Braun by specifically providing extrapolating from previously received packets an anticipated linear movement to be defined by subsequently received packets and applying output directional force signals corresponding to said anticipated linear movement in respect of any missing data packet for the purpose of allowing packet data to be transmitted in an overlapping fashion to avoid data loss.

Regarding claim 18, 373 and Braun, the combination discloses everything as applied above (see claim 14), however the combination fails to disclose that a series of packets defining preferred position are received, each packet defining a directional force applied at one location for transmission to the current location, the control means includes means to determine from packet data the sequence of transmission and re-

ordering the data into a numerically correct series, extrapolating from previously received packets an anticipated linear movement to be defined by subsequently received packets and applying output directional force signals corresponding to said anticipated linear movement in respect of any missing data packet.

Regarding a series of packets defining preferred position are received, each packet defining a directional force applied at one location for transmission to the current location, the control means includes means to determine from packet data the sequence of transmission and re-ordering the data into a numerically correct series, in a similar field of invention Wang discloses a minimally invasive surgical training using robotics and tele-collaboration. In addition Wang discloses that a series of packets defining preferred position are received by computer 150, where each packet defines a directional force applied at a remote location 140 for transmission to computer 150, where the computer 150 receives the packets and determines the sequence of transmission from the packets and re-orders the packet data in numerical order (figure 7; column 7 lines 56-67; column 8 lines 1-17).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 373 and Braun by specifically providing a series of packets defining preferred position are received, each packet defining a directional force applied at one location for transmission to the current location, the control means includes means to determine from packet data the sequence of transmission and re-ordering the data into a numerically correct series for the purpose of allowing packets in non-numerical order to be re-ordered to provide accurate output.

Regarding extrapolating from previously received packets an anticipated linear movement to be defined by subsequently received packets and applying output directional force signals corresponding to said anticipated linear movement in respect of any missing data packet, in a similar field of invention 613 discloses a method and apparatus for shaping force signals for a force feedback device. Further 613 discloses that a local processor receives packets of data defining a linear movement for a force where the movement is further defined by subsequent force data packets and applies output directional force signals corresponding to the force feedback data regardless of missing packets when overlapping data is contained in received packets (figure 1; column 3 lines 54-67; column 4 lines 1-20; column 9 lines 45-52).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify 373 and Braun by specifically providing extrapolating from previously received packets an anticipated linear movement to be defined by subsequently received packets and applying output directional force signals corresponding to said anticipated linear movement in respect of any missing data packet for the purpose of allowing packet data to be transmitted in an overlapping fashion to avoid data loss.

Response to Arguments

10. Applicant's arguments with respect to claims 1-18 have been considered but are believed to be answered by and therefore moot in view of the new ground(s) of rejection.

On pages 8-9 of Applicant's remarks, Applicant argues that 373 does not disclose using network latency.

The Examiner respectfully disagrees, because 373 does disclose that the latency of a network of processors caused by the different speeds of the processors is used for haptic feedback (figure 1; figure 5; column 18 lines 8-30).

On page 9 of Applicant's remarks, Applicant argues that because 373 deals with latency and solving the problems associated with latency, one of ordinary skill in the art would not be motivated to find a different way to solve the problem of latency.

The Examiner respectfully disagrees, because there are multiple ways to solve the problem of latency, and one of ordinary skill would have known about both the Chafe and 373 methods of detecting and solving the problem of latency, and would have had obvious reason to combine these methods where necessary for the purpose of improving performance of networks systems. Simply because Chafe provides another solution to the same problem does not mean that one of ordinary skill in the art would be "unmotivated" to use that solution in combination with 373 and 530 as described in the rejection above.

On pages 9-10 of Applicant's remarks, Applicant argues that one of ordinary skill would have no reason to look to Wang for a combination because it is in an unrelated field.

The Examiner respectfully disagrees, because one of ordinary skill in the art would know about Wang's applying a modifying factor to the force and direction signals, said modifying factor being derived from pre determined user preference data (figure 8;

figure 12; column 10 lines 42-67; column 11 lines 1-39). Wang is in the same field of endeavor as the Roseburg references because it incorporates both force feedback and networks.

On pages 9-10 of Applicant's remarks, Applicant argues that Niemeyer does not disclose signals defining a preferred current position are generated by the slave simulator.

The Examiner respectfully disagrees, because Niemeyer discloses this feature in column 5 lines 29-49.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stuart McCommas whose telephone number is (571)270-3568. The examiner can normally be reached on Monday-Friday 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisen can be reached on (571)272-7687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stuart McCommas
Patent Examiner
Art Unit 2629

SSM

/Alexander Eisen/

Supervisory Patent Examiner, Art Unit 2629